

between the epimeron and the corresponding episternal piece ; each of these apertures bears an oviferous sac. The glands can secrete the two sacs in less than ten hours.

In the genera *Cyclopsina* and *Canthocamptus* the female aperture is situated upon the boundary between the first two abdominal segments. The reservoir and the two glands exist as in *Cyclops* ; but here the orifices of the glands open at the vulva, which bears directly the single oviferous sac.

The oviferous sacs are secreted by layers one *within* the other ; the bottom has only a single layer.

In the male *Cyclops quadricornis* there are not, as has been supposed, two genital apertures at the angles of the last thoracic somite, although two organs producing the spermatophores actually exist there ; but there is only a single orifice, in the form of a fissure, at the posterior margin of the first abdominal somite.

Like the Cladocera, the Copepoda propagate with great rapidity. *A priori* one might suspect in them an apparent or actual parthenogenesis ; but my experiments show that young animals isolated immediately after hatching never reproduced, nor did females sequestered after their first oviposition ever produce new oviferous sacs and new eggs. Moreover, in a state of nature, the males are sufficiently common to render parthenogenesis quite unnecessary for the preservation of the species.

XLII.—*Note on Polytrema miniaceum.*

By Prof. G. J. ALLMAN, F.R.S.

To the Editors of the Annals and Magazine of Natural History.

GENTLEMEN,

Among the most abundant products of the dredge on the coast of Mentone is a little, red, branched, coral-like body which attaches itself to various objects brought up from moderate depths. It is so conspicuous that it must be familiar to most naturalists who have studied the fauna of the Riviera, and was long ago described by Risso under the name of *Polytrema corallina* ; while, as De Blainville has pointed out, it appears to be identical with the *Millepora miniacea* of Linnæus, whose specific name it must therefore receive.

With the exception, however, of some suspicions of its rhizopodous affinities entertained by Gray and by Dujardin, its real nature appears to have been entirely misunderstood, systematic writers having placed it either among the true

Corals or the Polyzoa, until Carpenter, by the examination of dried specimens received from tropical seas, determined its position to be among the Rhizopoda—a determination subsequently adopted by Max Schultze, who, in a detailed memoir, takes a similar view, arrived at from an examination of Mediterranean specimens preserved in spirits.

Having just had ample opportunity of examining it in a living state, I am enabled to confirm in all essential points the views of Carpenter and Schultze. *Polytrema miniaceum* is a true Rhizopod. Its calcareous skeleton forms a multitude of irregularly superimposed chambers, which freely communicate with one another by large orifices; and besides the large passages by which this free communication is maintained, the walls of the chambers are almost everywhere traversed by capillary canals.

In the living state every chamber is filled with a clear colourless protoplasm, so transparent that its presence may be easily overlooked, until, by the action of alcohol or dilute acid, it loses its transparency and becomes obvious. The protoplasm passes freely from chamber to chamber through the wide passages by which the chambers open into one another, while it also sends delicate prolongations into the capillary canals of the walls. I can confirm Max Schultze's observation of the existence of siliceous spicula, resembling those of sponges, in the interior of the chambers; but as in many specimens I could find no trace of them, I can hardly avoid regarding their presence as accidental.

Though there can thus be no doubt of the rhizopodous nature of *Polytrema*, I never succeeded in detecting the emission of pseudopodial extensions of the protoplasm; and the capillary processes which may be traced into the canals of the chamber-walls were never, during prolonged examination of living specimens, projected beyond the surface.

Any contribution to our knowledge of *Polytrema* will probably be deemed of interest, more especially when we regard the apparent affinities of *Polytrema* with *Eozoon*, and the light which the structure of the living Rhizopod seems capable of throwing on the oldest of known organisms.

I remain, Gentlemen,

Yours faithfully,

GEORGE J. ALLMAN.

Mentone, Alpes Maritimes.
April 2, 1870.